

# THE MOUNT JASPER LITHIC SOURCE, BERLIN, NEW HAMPSHIRE: NATIONAL REGISTER OF HISTORIC PLACES NOMINATION AND COMMENTARY

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*The Mount Jasper lithic source nomination includes bedrock outcrop locations of Mount Jasper rhyolite and related workshop areas. Mount Jasper rhyolite was used locally in the Androscoggin River valley during the Archaic and Woodland (Ceramic) periods. Defining the boundaries of this and other prehistoric archaeological sites for nomination to the National Register of Historic Places can be difficult.*

## INTRODUCTION

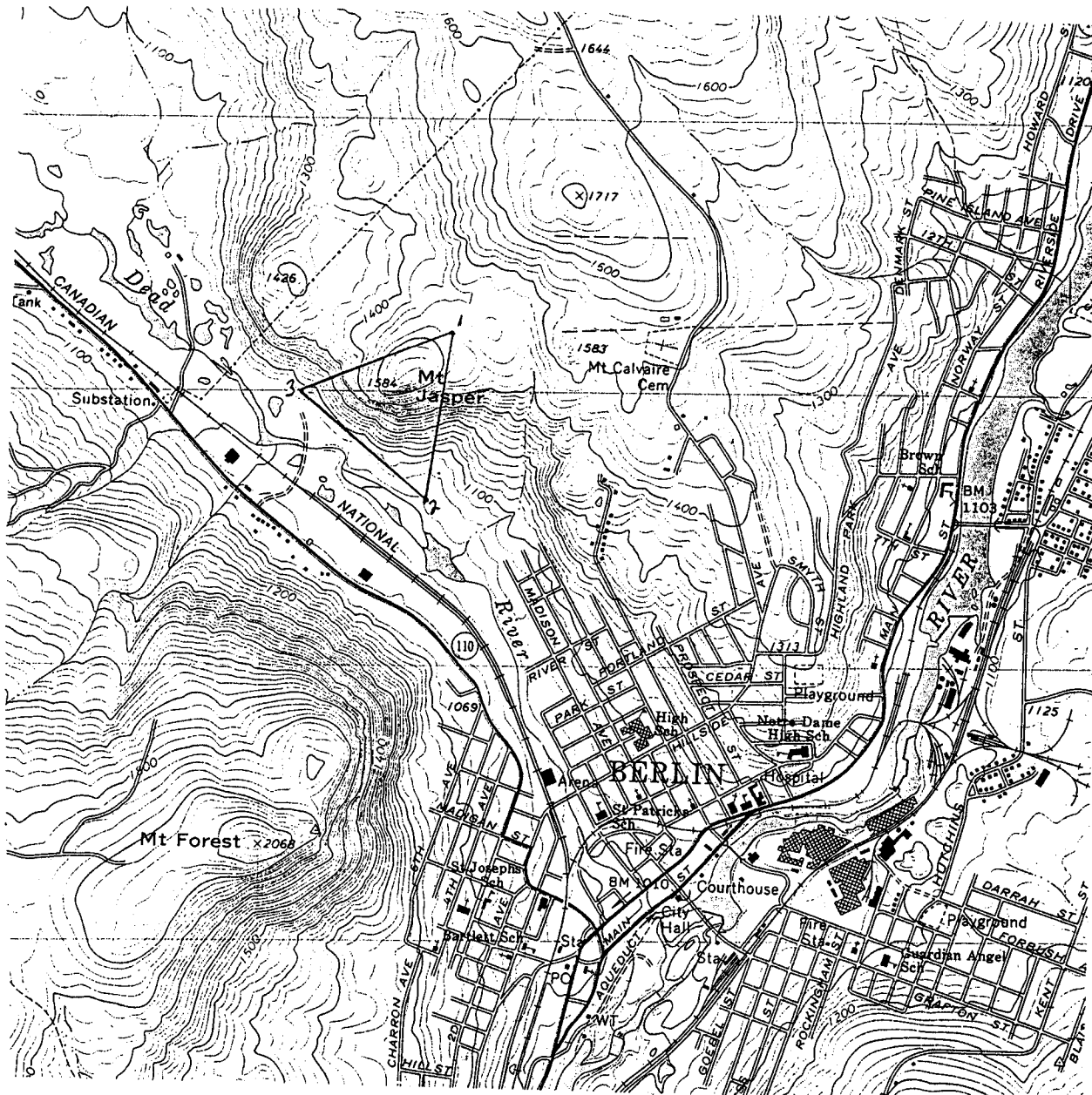
On April 23, 1992, the New Hampshire State Historic Review Board approved the nomination of the Mt. Jasper Lithic Source to the National Register of Historic Places. On May 29, 1992, the Keeper of the National Register concurred with this determination and the property was listed. This action conferred a degree of recognition to the site and, in so far as it may be affected by the direct or indirect actions of the federal government, a degree of protection. In order to achieve this status, a detailed description and justification satisfying the requirements of National Register Bulletin 16A (National Register Branch 1991) was generated. This kind of documentation is essential for a successful nomination, however once completed, these nominations rarely see the light of day. If they do surface, it is typically in the context of a required background study for a federal project which might impact these or other nearby historic properties, and they are viewed only by a handful of consultants and governmental officials. The general public, in whose name these nominations are prepared, rarely, if ever, sees these documents.

This article is an attempt to make information in the Mount Jasper Lithic Source nomination more accessible to the public, especially to the avocational archaeology community. The information presented below is extracted from the nomination with relatively little editing. The overall structure from the nomination is retained and the text is taken nearly whole cloth from the original. In the interest of brevity, some of the strictly technical information -- such as UTM coordinates and location of the photographic negatives -- has been omitted, and some of the narrative segments have been re-ordered to achieve a more coherent organization.

This document thus serves two purposes. The first, as previously stated, is to make the information more widely available. The second purpose is to illustrate the actual nature of the narratives and the arguments used to support placing an archaeological site on the National Register. Consistent with this second purpose, I have footnoted the various section headings and relevant paragraphs to indicate the corresponding sections of the National Register Registration Form. The four photographs in the article were also presented in the original nomination.

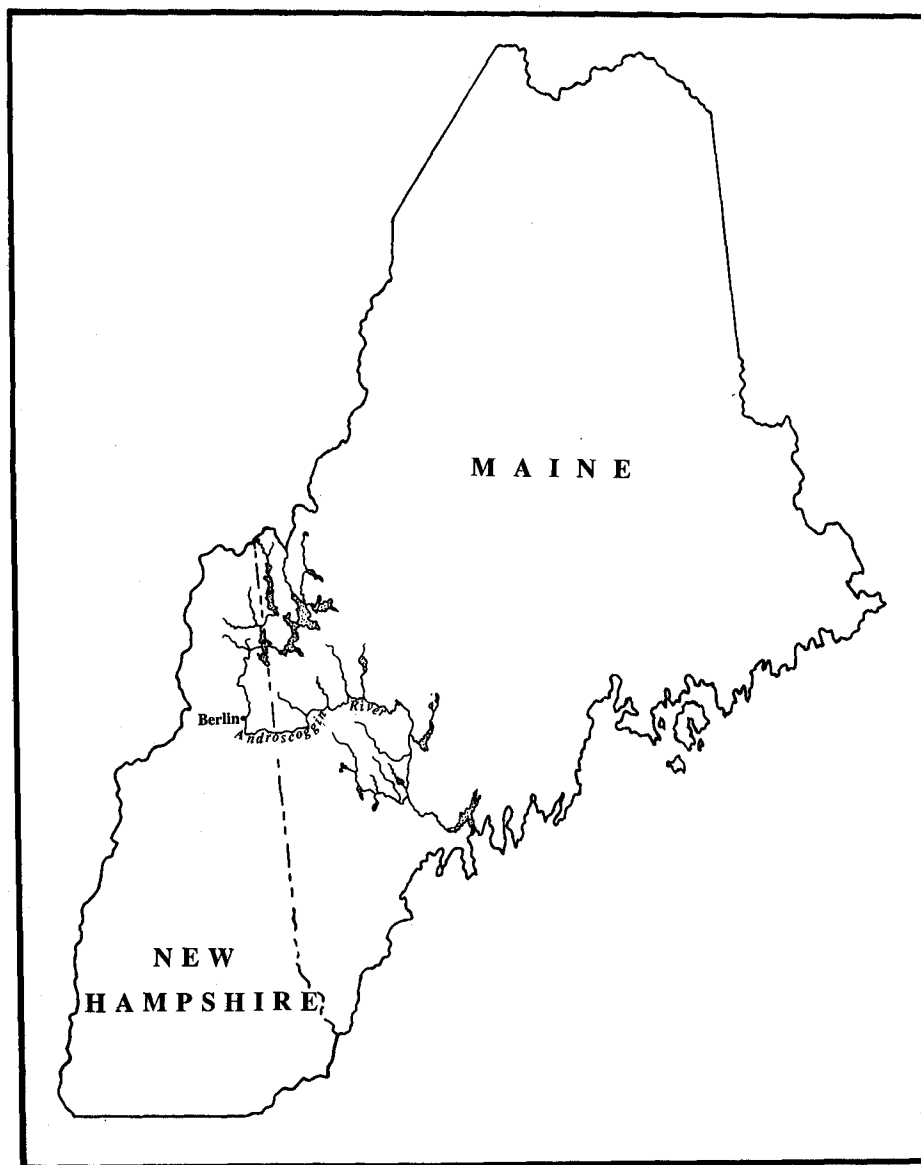
## DESCRIPTION OF THE PROPERTY<sup>1</sup>

The Mount Jasper Lithic Source is located in and owned by the city of Berlin, New Hampshire, on the northwest edge of the city development (Figures 1 and 2). The mountain proper is a domed promontory



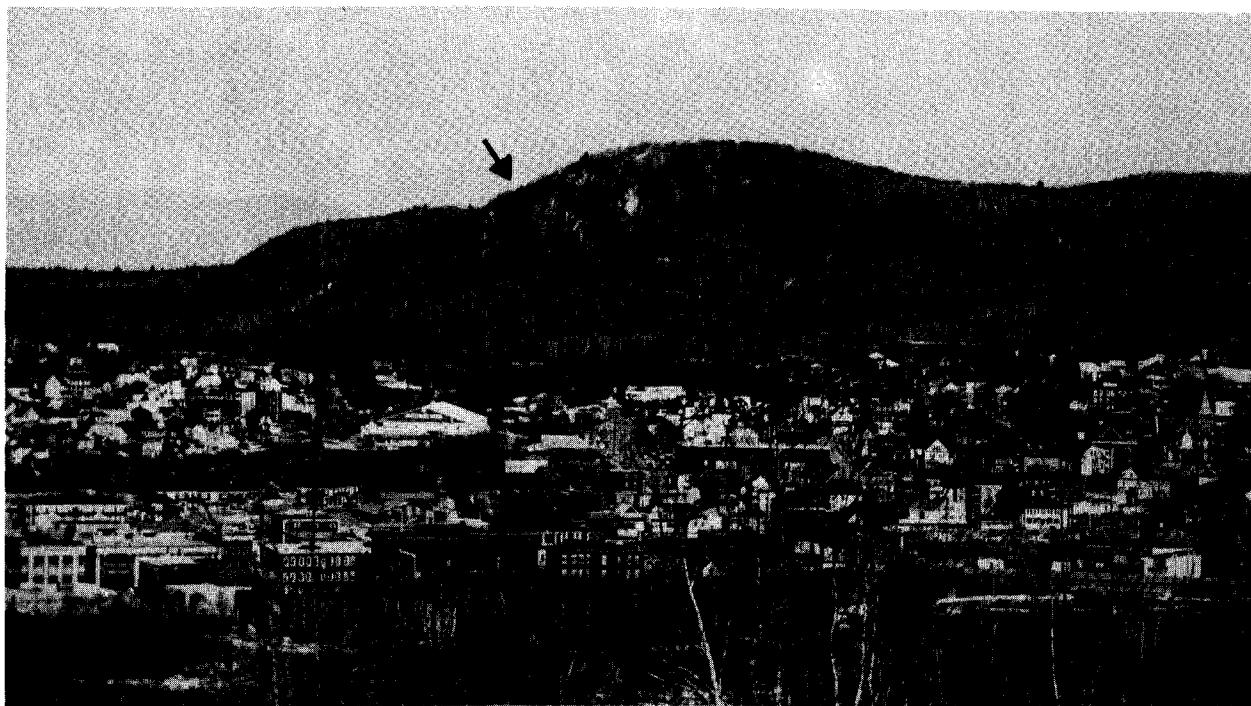
**Figure 1.** Location of the Mount Jasper lithic source, Berlin, New Hampshire.

perched on the southwest facing edge of an escarpment-like formation overlooking the Dead River. Similar, though unnamed, promontories are situated southeast and northwest of Mount Jasper. The summit is 1584 feet (495 meters) AMSL, while the base along the Dead River is at 1040 feet (325 meters). The northeast side of the hill descends gently only to 1460 feet (456 meters) to a saddle where the elevation rises again toward the northeast (Figure 3). The south-southwest exposure is very steep and near the summit actually attains a nearly vertical aspect (Figure 4). These steepest portions consist of bare ledges, elsewhere the hill is covered by only a thin soil mantle.



**Figure 2.** Location of Berlin, New Hampshire and the Androscoggin River valley.

The property is bounded on the north beginning at a point approximately 150 meters northeast of the highest point of Mt. Jasper, this place being the middle of the topographic saddle which separates the hilltop from the rest of the mountainside. The boundary extends south 600 meters from this point to the edge of the Dead River floodplain; this edge is well defined by an Off Highway Recreational Vehicle trail. From this point, the boundary extends northwest, following the trail, for 600 meters. At this point the boundary line turns west-northwest for 600 meters, rejoining at the starting point. The area thus defined is an equilateral triangle, encompassing the Mt. Jasper hilltop at one apex and the toe of the slope along the Dead River forming the opposing side. The sides connecting the ends of the Dead River segment extend up the steep hillsides closely following intermittent drainages.<sup>2</sup>



**Figure 3.** Mount Jasper, view facing northwest. The City of Berlin is in the foreground.

Archaeological excavations by R. Michael Gramly in the 1970s and myself in 1989 and 1990 have verified the presence of undisturbed archaeological deposits at each of the corners of the property. Erosion and gravel operations along the Dead River floodplain have removed any archaeological deposits that may have been located in that area. Mining and workshop debris are found on the hilltop, but do not extend through the more steeply sloped areas to the north and east. The soil mantle on the slopes is thin and has been subject to significant sheet erosion due to forest removal over the past century. The boundaries presented enclose all of the locations of the rhyolite seams and the intact archaeological components within the smallest possible geometrically shaped area.<sup>3</sup>

Vegetation consists of scrubby second growth trees, shrubs and bushes which include aspen, birch, pine, hemlock, maples and beech. Blueberry constitutes an abundant ground cover on the sparsely wooded summit. The base of the hill is bordered by a wetland containing cattails and affiliated species growing along the margins of the Dead River. No structures are to be found within the property, and there is no evidence of any above ground construction in the past. Even stone walls are lacking. The only evidence of contemporary era impacts are the few footpaths and Off Highway Recreational Vehicle (OHRV) trails which trace through the property.

The Mt. Jasper mine was apparently discovered in the mid-nineteenth century. The Centennial Program for Berlin (Hodder et al. 1929) reports the following attributed to Bailey K. Davis:

It was a source of wonder where the Indians obtained this jasper, but this was settled by William Sanborn, who some time in the year 1859 found what has been locally known as Jasper Cave situated on the east side of Dead River.... (T)he vein varies in thickness from a few inches to several feet, and as there is no other place [on the Androscoggin, Kennebec, and Penobscot



**Figure 4.** Mount Jasper, view facing east. State Route 110 is in the foreground.

Rivers] where this jasper has been found it seems certain that this is the place where the red men, with incredible labor obtained what was to them of far more value than silver or gold....

Given the extremely steep nature of the hillside and the unobtrusive location of the mine opening, it is not unusual that it could have escaped attention for many years. The earliest primary reference to the Mt. Jasper rhyolite appears to be by N.T. True (1869) in an article entitled "Mineralogy among the Aborigines of Maine" which makes a passing reference. True (1869:166) comments: "A variety of ribbon jasper, found in Berlin, NH was extensively employed by the Androscoggin Indians. This locality has been rediscovered within a few years, where the chips were found which they had left."

Despite the garbled syntax, it is evident that the author was referring to the exposed dikes of flow banded rhyolite on Mt. Jasper where this material had been quarried. Thus, it appears that Mt. Jasper was discovered by the EuroAmericans in the mid-nineteenth century, and it was recognized as a Native American mining location from that time.

Within the boundaries of the property, there are two kinds of archaeological components which have different functional characteristics. These are the quarry/acquisition areas and the workshop/manufacturing areas. These aspects were integrated prehistorically, and the Mt. Jasper locality is most properly conceived as a large multifaceted prehistoric industrial site. The acquisition loci are coincident with the dikes of flow banded rhyolite. The most obvious acquisition place is the famous Mt. Jasper mine, which is situated on the southwestern face of the cliff-like section, at an elevation approximately 20 meters below the summit of the hill. However, there are additional exposures of the rhyolite which extend over the mountainside which have also been quarried, but to a much lesser degree. The workshops tend to occupy more level



**Figure 5.** Mount Jasper mine, facing in. Note the person standing at upper opening.

areas within the property and were evidently spots to which the prehistoric quarry workers removed themselves in order to process the stone taken from the dikes. These are situated both above and below the exposed ledges. In at least one location, the acquisition and manufacturing areas overlapped. This occurred on the top of the hill where a rhyolite dike extends through the relatively level summit. Here, both quarrying and manufacturing took place in the same location. The principal use areas of the property are summarized as follows.



Figure 6. Mount Jasper mine, facing out. Note person standing in the lower opening.

### The Mine

The earliest reference to the mine at Mt. Jasper appears to be by C.H. Hitchcock (1877:202), who made an oblique reference to it in his *Geology of New Hampshire*, stating: "On the steep, precipitous slope that overlooks Dead River Pond, in a rock itself apparently intrusive, there are dykes of a compact, jaspery-looking rock, which is a compact feldspar; and in this there is a cave of some little note." Curiously, he refers to the mine as a cave, inferring that it is a natural feature rather than a cultural one. Given the obvious battering to be seen on the walls and the abundant debris visible even today, it is evident that Hitchcock did not himself visit the site and the reference was based on secondary information.

R. Michael Gramly and Steven Cox (1976) provided the first thorough description of the mine (which they refer to as an "adit"). The mine penetrates the mountain for approximately nine meters with a height of six meters and a width of approximately two meters (Figures 5 and 6). The mine follows a seam of vitreous rhyolite which is actually a geological structure known as a dike. The dike, which is one of several in the mountain, constitutes a tabular or sheet-like intrusion through the granite, schists and other formations that make up the bedrock of the hill. These dikes do not follow the existing strata in a parallel fashion, rather they are established at angles crosscutting the older formations through which they pass.

### **The Dikes**

The exposed ledges near the top of Mt. Jasper reveal several rhyolite dikes. The largest of these contains the mine. Similar, but significantly more narrow dikes are exposed east of the mine. In each instance these formations have been battered, and abundant flakes of the distinctive rhyolite are found immediately below these exposures. The prehistoric miners evidently extracted additional raw material from these faces as well as from the mine. Mining was apparently not attractive or possible since the seams were less than 50 cm wide. Other dikes were documented buried beneath the thin soil mantle on the summit of the hill (Gramly 1984:19-20). This dike was located in conjunction with a tool manufacturing workshop. Other dikes are reported on the mountain, but have not been precisely mapped (Billings and Fowler-Billings 1975:79, Figure 52). All of the exposed dikes show evidence of extraction, and it is likely that at least some of the unexposed dikes were exploited prehistorically. The workshop at the summit of the hill was apparently situated strategically at one such dike.

### **The Summit Workshop**

Excavations by R. Michael Gramly (1980, 1984) uncovered a lithic workshop on the top of Mt. Jasper. Fifty-six square meters of surface area were excavated and were designated as the Hill Workshop. Manufacturing debris as well as quarry waste were found mixed together in soil overlying and adjacent to a rhyolite dike. This workshop area was identified as having been used during the Middle and Late Archaic periods on the basis of diagnostic projectile points which were found in association with the workshop. Gramly's 1984 study (especially Figure 2.14) shows the relationship of the density of the flaking debris, tools and the dike. Only one area was tested by Gramly, and it is likely that additional areas were also utilized around the summit for quarrying and manufacture.

### **The Base Workshops**

The base of Mt. Jasper consists of a very steep slope (usually at least at a 50% gradient) which flattens abruptly at the Dead River floodplain. At this juncture a series of lithic workshop areas have been identified. Gramly's excavations in the 1970s identified workshop areas which he describes (Gramly 1984:16) as two concentrations of debitage (termed loci). One of these, Locus Alpha, Gramly subsequently resolved into Alpha-1 and Alpha-2 (Figure 2.8). Although these loci were only a few meters apart on relatively level ground, the other major concentration, Locus Beta, was separated from the others by rocky, uneven ground and a dense thicket of poplar. The intervening 15 to 20 meters was virtually sterile of finished tools made of exotic raw materials.

Recovery of a series of diagnostic corner notched projectile points led Gramly (1984:16) to identify a late prehistoric era presence at these loci. The depth of excavation for the Hill and Dead River Workshops is not reported.

In addition to these excavations, test pits were excavated by Richard Boisvert, New Hampshire Division of Historical Resources, as part of the 1989 Summer Field School which was jointly sponsored by the Division and Plymouth State College. Five test pits, each a meter square, were excavated in a setting similar to Gramly's Locus B, 50 meters north of that locus. Although much smaller in scope, these test pits revealed a similar array of manufacturing debris, but in substantially lower densities. Cultural materials in the form of flakes, cores and core fragments were found to a depth of 45 cm below the surface at this location. No temporally diagnostic artifacts were recovered from these excavations. However, materials recovered from these test pits have supplied the data for a detailed analysis of the Mt. Jasper rhyolite as a raw material (Boisvert and Dickinson 1992).

A final test pit was excavated in October 1990 at the northern end of the floodplain in order to verify the presence of buried deposits at the northern end of the property. Debitage was noted on the surface of this area, in addition to the surface of the Off Highway Recreational Vehicle trail which connects this



area to Gramly's Locus A. The single test pit yielded a collection of Mt. Jasper rhyolite similar in all regards to the artifacts from the 1989 excavations. Flakes were recovered to a depth of 35 cm below the surface.

Given the broad distribution of rhyolite flakes at the exposed areas along the foot of the hill and the fact that all excavations within this area recovered workshop debris, it is reasonable to infer that virtually all of the area was used for tool manufacture. Greater and lesser densities of manufacturing debris suggest differential occupation and use over time, which could hypothetically be segregated into different workshop episodes. The boundaries on the workshops are diffuse and are not readily circumscribed.

### **Summary of the Site Description**

The Mount Jasper Lithic Source is a large and broadly defined area, however the distribution of the geological and cultural features are best understood as representing many components of a single larger cultural manifestation. All of the exposed rhyolite dikes, as well as some unexposed dikes, were exploited by prehistoric peoples. Once the stone was extracted from the mountain, these people then moved to nearby settings where the material was further worked and manufactured into tools or tool preforms. Where possible this second stage of utilization took place adjacent to the dikes, however in some instances this was not possible due to the extreme slope of the hillside. Workshops are located on those relatively level areas near the dikes and are especially abundant at the foot of the hill as well as on the hilltop.

## **SIGNIFICANCE OF THE PROPERTY**

The Mt. Jasper Lithic Source is significant in the areas of prehistoric archaeology and industry. Within these combined areas, it is significant primarily for its contribution to the understanding of prehistoric lithic technology and secondarily for its potential for contribution to understanding prehistoric settlement and exchange patterns. The property is therefore eligible for listing in the National Register under Criterion D because it has yielded, and also is likely to yield, information important to the understanding of prehistoric stone tool technology, settlement and exchange systems during the Archaic (ca. 7000 to 1500 BC) and Woodland (ca. 1500 BC to AD 1500) periods of New England. The lithic source area contains places where a rare and high quality raw material was found, mined and made into the tools essential for survival by prehistoric hunter-gatherers for approximately 8,500 years. Evidence for its widespread use comes from the recovery of tools made from Mt. Jasper rhyolite at sites at some distance from the source, as well as the discovery of worn-out and abandoned tools that were made from stone only found in nature hundreds of miles away which were left behind by the prehistoric miners and tool makers.

### **Period of Significance**

The time span during which the Mt. Jasper lithic source was used begins with the Early Archaic period approximately 9000 years ago and extends through the end of the final era of prehistoric occupation in New England, the Late Woodland period, approximately 500 years ago. Two lines of evidence support this interpretation: data from the workshops at Mt. Jasper, and the recovery of artifacts made of Mt. Jasper rhyolite in datable contexts in other sites.

R. Michael Gramly (1984) reports on the recovery of diagnostic projectile points found in the hilltop workshop which date to the Archaic period. He illustrates a series of points of Middle and Late Archaic age (Gramly 1984:20, Figure 2.15). Although he does not specify the specific projectile point types, the general morphology represented conforms to the Late Archaic Susquehanna tradition points (Snow 1980:235-249) and to Middle Archaic types recovered from the Neville site (Dincauze 1976). The

Woodland period artifacts were recovered from the workshops adjacent to the Dead River (Gramly 1984:18, Figure 2.11). Again, the specific varieties are not named, however the illustrated specimens most closely resemble the Jacks Reef Corner Notched type (Ritchie 1979). Although all of these points were found at the Mt. Jasper Lithic Source, none were made from this material. Rather, the points were manufactured elsewhere and brought to the site by people seeking to obtain the rhyolite.

Artifacts made from the Mt. Jasper rhyolite which are themselves temporally diagnostic, or which have been recovered from dated contexts, are also valid indications of when the source was being exploited. The earliest indication of the use of the material appears to be from the Rumford Falls V site (ME 49.28) near Rumford, Maine. Hamilton and Mosher (1990:9) report:

The site produced abundant flaked stone remains dominated by Mt. Jasper rhyolite. However, there appears to have been significant shifts in raw material usage at the site which have been radiocarbon dated. A radiocarbon date of  $9370 \pm 120$  B.P. was obtained for level 16 and marks a shift from exclusive use of quartz to exclusive use of Mt. Jasper rhyolite.... Two additional dates of  $6000 \pm 70$  B.P. and  $5760 \pm 100$  B.P. were obtained from level 7 at this site. These two dates mark the Middle and Late Archaic period interface. Lithic remains peak in number and density between level 16 and level 7. Level 7 flakes are almost exclusively Mt. Jasper rhyolite. Above the dates of 6000 to 5700 B.P., the lithic inventory becomes more diverse with a mixture of chert, rhyolite and quartz.

Thus it is clearly evident that Mt. Jasper rhyolite was used throughout the span of the Archaic period at this site in Rumford, Maine. This site is now pending nomination the National Register of Historic Places at the Maine Historic Preservation Commission (Arthur Spiess, State Archaeologist, Maine Historical Commission, personal communication March 5, 1992).

Other sites in the Rumford vicinity have also yielded Mt. Jasper rhyolite in dated contexts. A biface fragment and 147 flakes were obtained from a feature in site ME 49.10. This feature was encapsulated in a stratum that produced dates of 3740 BC and 3460 BC which the excavators state, "...represent the earliest portion of the Late Archaic period of northeast prehistory" (Hamilton and Mosher 1991:11). At the Rumford Falls I site (ME 49.24), a date of 2610 BC, which is firmly placed in the Late Archaic period, was obtained on charcoal in association with a Mt. Jasper rhyolite biface fragment (Hamilton and Mosher 1991:18). Late Archaic use of Mt. Jasper appears to be common, at least in the Androscoggin River drainage.

Woodland (Ceramic) period use of Mt. Jasper rhyolite is also reflected in the occurrence of the material made into points from this era. At the Molls Rock Site on Lake Umbagog, which is located on the New Hampshire-Maine border, a corner notched point was identified. Gramly and Rutledge (1982:125) state: "Points of this shape have a wide distribution in northern New England and the Maritimes and they are dated to the closing phases of the prehistoric Ceramic Period." Other Woodland period evidence for Mt. Jasper rhyolite usage is reported by Paquin and Petersen (1988) at Cascade Falls on the Androscoggin River only four kilometers from the Mt. Jasper Lithic Source. As the name implies, the site is situated adjacent to a major waterfall. Virtually all of the debitage at the site is the Mt. Jasper rhyolite. Their testing also yielded an assemblage of ceramics which they state, "...most probably dates to the early Late Woodland period, ca. A.D. 1000-1300" (Paquin and Petersen 1988:26). Consequently, we may reasonably assume that Mt. Jasper rhyolite was being used during this time period.

Outside of the Androscoggin River drainage, Mt. Jasper artifacts and debitage have been identified in mixed Archaic and Woodland components. For example, at the Stonedam Island site, located in Lake Winnepesaukee, non-diagnostic scrapers and flakes have been recovered. There is also anecdotal reference to apparent Mt. Jasper rhyolite on other sites on the Merrimack River in southern New Hampshire.

While there is firm evidence for Archaic and Woodland period use, there is no evidence, as yet, for use of this material by Paleo-Indian peoples. Gramly, after conducting research at Mt. Jasper, excavated the Vail site (Gramly 1982) and the Adkins site (Gramly 1988), both of which are Paleo-Indian sites in western Maine. He makes no mention of the material at the former site and, in reference to the Adkins site, he states, "It (Mt. Jasper rhyolite) apparently went undetected by Palaeo-Indians" (Gramly 1988:7). This opinion is also held by Arthur Spiess, State Archaeologist for the State of Maine, who reports that he knows of no Paleo-Indian projectile point made from this material.

On the basis of the forgoing data, it can be confidently demonstrated that the Mt. Jasper lithic source was used throughout the post Paleo-Indian prehistoric time span. Paleo-Indian usage is not documented and it appears that the source was either not known, or at least was not used, during this initial prehistoric period.

### **Significance for Prehistoric Lithic Technology and Industry**

The study of lithic technology is indispensable to any understanding of the prehistory of New Hampshire. The notoriously acid soils of the region render virtually all of the perishable prehistoric materials (bone, wood, fabrics, hides, antler, plant food remains, etc.) nonexistent. Rare examples may survive in the archaeological record, but they must be considered a nonrepresentative sample (in a statistical sense) of perishables. Stone tools and manufacturing debris, in contrast, survive nearly intact, both in numbers and in terms of condition. Thus, lithics could be considered over-represented in the archaeological record. However, even with this caveat, the role of lithic artifacts in the archaeological interpretation of New Hampshire must still be considered to be of primary importance. By any measure, lithics still constitute the vast bulk of the data, and within the category of lithics, the by-products and related debris from the quarrying and manufacturing processes hold a similarly dominant position. Lithic artifacts provide our best, although admittedly skewed, perspective on the prehistory of the state. Therefore, it follows that the study of stone artifacts and their manufacture is essential. A more extensive discussion of the importance of lithic technology as an historic context is presented in the planning document devoted to this topic (Boisvert 1992).

Stone which would be most desirable for making knives, spear points, scrapers and other cutting and piercing tools is extremely rare in New Hampshire. Chert or flint, which is a sedimentary stone, does not occur in the state. The adjoining states do possess some stone of this type, but none are within 100 miles of the Lakes Region or White Mountains. Coarser-grained volcanic rock, such as common rhyolites and felsites, are available and were used prehistorically. Likewise, quartz was widely available but in most of its forms it was difficult to work. Consequently, high quality, fine-grained stone was of great value to the prehistoric natives of the state.

Mt. Jasper contains a series of geological features (dikes) in which a very hard, brittle, vitreous or glassy rhyolite has been extruded. It is distinctive for its colorful green and red bands which reflect the way in which the material flowed into the fissures, creating the dikes. While dikes are common in the White Mountains, only those at Mt. Jasper contain this flow banded rhyolite which possessed the qualities most desired by prehistoric stone tool makers (Billings and Fowler-Billings 1975:76-83). This distinction makes Mt. Jasper a specific kind of lithic source as discussed in the Lithic Technology planning document (Boisvert 1992). Mt. Jasper is a source which exists only as a single, relatively small place in the overall environment in contrast to lithic sources which may occur as extensive geological formations (such as the Mt. Kineo felsite in Maine) or even as broadly distributed zones (such as glacial outwash sediments which may contain usable quartz nodules). Thus, Mt. Jasper is a prime example of a particular kind of lithic source.

The mine at Mt. Jasper is powerful testimony to the importance of this material to prehistoric peoples. There are many locations where cherts and similar lithics were quarried from the ground, for example

the notable Ohio Flint Ridge (Licking Co., Ohio), and the Alibates Flint Quarry (Potter Co., Texas). Flint Ridge is listed on the National Register of Historic Places, and Alibates is a National Historic Monument. However, there are no recorded instances in the eastern woodlands where actual mines, with horizontal mine shafts penetrating mountainsides, have been established for the purpose of mining for such stone. Thus, although Mt. Jasper is a much more modest lithic source in terms of physical size, it is still unique in eastern North America. The explanation is probably a consequence of its relative high quality product in an otherwise impoverished region.

It is difficult to determine how much stone was obtained from the source. In addition to the mine, there are the exposed dikes which were also exploited. Gramly estimated that 300,000 kg (ca. 330 tons) of debris was left in the workshops at the site and that 150,000 kg (ca. 165 tons) of the stone was carried away in the form of cores and partially finished tools (1980:824). While the acquisition areas at the source were limited in size, it is still evident that a substantial amount of rhyolite was acquired and used. Even assuming that 90% of the removed material became waste (leaving 15,000 kg), and if this remainder were made into typical projectile points and scrapers which might have weighed five grams, then we may estimate that there were some 3,000,000 tools made from this material. While these calculations could be adjusted to reflect more or less conservative estimates, it is clear that the Mt. Jasper lithic source was significant in prehistory.

The workshops at Mt. Jasper are an integral component to the understanding of the source. They represent the extension of the manufacturing process from the acquisition stage through the early phases of tool production. The nature and extent of the debris and manufacturing tools left behind are precisely the data necessary in order to interpret how the tools were made. Although portions of the workshops have been excavated, it is also clear that additional areas remain intact. Therefore, the lithic source and associated workshop areas have the potential to produce more data relevant to such research. Questions which may be addressed include: Did the physical nature of the flow banded rhyolite require any special or unique methods of manufacture? Was this material especially well-suited for the manufacture of certain kinds of tools? Was the process of mining or manufacture at this site the domain of specific specialists? Were there changes in the methods of manufacture over time, if so how do they correlate with other changes in culture and environment?

### **Significance for Prehistoric Settlement and Exchange Systems**

The artifact inventories at the workshops include some tools made from materials other than Mt. Jasper rhyolite. These exotic lithics have been an important and intriguing source of data leading to interpretations regarding the settlement patterns of the peoples who used this source. The investigation of the workshops by Gramly led him to identify the regions from which the prehistoric peoples came and, furthermore, to propose that the nature of the exploitation of the resource was distinctly different between the Woodland and Archaic periods. Recovered from the workshops were not only prodigious amounts of Mt. Jasper rhyolite, but also rare specimens of worn-out and broken tools made from cherts which were imported from great distances. These artifacts were presumably discarded at the workshops and replaced by fresh specimens made on the spot. Assessing the condition and function of these artifacts, and identifying the sources as being primarily in northern and northeastern Maine, Gramly (1980:828) concluded that the people who visited Mt. Jasper did not reside in New Hampshire all year. Rather they spent substantial amounts of time on a seasonal or yearly basis further east, returning to the region possibly to fish or hunt moose. While on these expeditions to the upper Androscoggin River, they took the opportunity to replace and augment their tool inventory. If this interpretation is correct, then the worn and exhausted Mt. Jasper implements should be found in these distant places, thus tracing the migration patterns.

Gramly also noted apparent distinctions in usage of the lithic source which changed over time. During the Archaic, he proposed that the usage was on an intermittent and small-scale basis, whereas during the subsequent Woodland it was more intensive. He observed that concentrations of flakes did not accumulate in a single episode of toolmaking (at the Archaic Hill Workshop), but appeared to have grown in size with every visit. At the (Woodland) Dead River Workshop, in contrast, thick deposits of flakes yielded different sorts of artifacts than did the thin deposits. The patterning of the Dead River loci suggests that thousands of artifacts were deposited simultaneously, while at the Hill Workshop repeated small operations are so well-mixed that discrete events could not be recognized (Gramly 1984:20).

Although the accuracy of the interpretation may be debated, it is nonetheless evident that inter-regional patterning can be deduced from evidence from Mt. Jasper and that where different eras can be identified, differences in utilization can also be recognized. Further investigation along these lines of inquiry should be productive. In addition, additional data may be brought to bear by identifying artifacts made from Mt. Jasper rhyolite at other sites. Hypotheses generated from research at Mt. Jasper could be tested with information from related sites in other areas.

The issue of exchange systems and the potential role of Mt. Jasper rhyolite is an open question. Gramly, who has conducted the greatest amount of research relevant to the source, states flatly that it was not a factor: "Trade, as the means whereby raw materials reached the upper Androscoggin Valley, must be dismissed; the proportion of foreign stones [99%] is simply too great. Seasonal or once-yearly journeys to hunting grounds of interior Maine may account for the presence of so many foreign stones" (Gramly 1980:828). However, an assessment of Mt. Jasper material in other sites has not been attempted and it is possible that it was exchanged between groups as well as circulating within various bands with consequent deposition in the sites associated with their settlement pattern.

### Conclusions

The Mt. Jasper Lithic Source is an excellent example of a kind of natural resource critical to the survival of prehistoric people in New Hampshire and adjacent parts of the Androscoggin River valley in Maine. The material itself is high quality and its value was enhanced due to the paucity of such material in northern New England. The lengths to which people went to obtain the stone were extreme, if not unprecedented, causing them to actually create a mine which required an enormous amount of effort. The material is rare and yet widespread. Found naturally only at this source area, it was used by people who ranged at least as far as northern Maine and down the Merrimack drainage. The associated workshop areas reflect both a long-term and, on some occasions, intensive use of the stone. The volume of material taken from Mt. Jasper is large, and even a conservative estimate of the number of artifacts manufactured reaches into the millions. The concentration of artifacts in these workshops makes it evident that there is much research potential into how the material was obtained and used. Furthermore, the distinctive nature of the stone makes it possible to use it as a marker or tracer of the people who mined and used it, thus allowing for the reconstruction of their patterns of movement and settlement, and potentially even trade.

### COMMENTARY

The forgoing constitutes the bulk of the Mt. Jasper Lithic Source National Register nomination. What is not evident is the long history of efforts to place the property on the Register and the kinds of problems encountered. The first two attempts were submitted by R. Michael Gramly in 1979 and 1981. Although the significance, integrity (i.e., degree to which the site was intact) and interpretation of the property were undisputed, the issue of definition of the boundary was challenged. I argue that the National Register is fundamentally oriented towards buildings or, at best, groups of buildings, which are placed on parcels of land that are precisely defined and recorded in our legal system. The National Register inherently

embodies assumptions and values integral to not only a Western culture concept of place (fixed boundaries, divisibility, transferability, and an overall sense of definition on empirical grounds), but also to a uniquely American conceptualization of the primary importance of land ownership, something which is deeply embedded in the United States Constitution. It is no surprise that prehistoric, non-Western, subsurface archeological sites would not fit comfortably among the "normal" properties listed on the National Register.

As a result, the property lay in bureaucratic limbo for a decade. In that time the National Register nomination form has changed, but the philosophical basis of the Register has not, at least in terms of sites such as Mt. Jasper. We were able to eventually place the site on the Register, but only after a careful study of the requirements and close communication with the National Register review staff. Much effort was placed on defining the property. One will notice that I have avoided using the terms "site" and "component" in reference to Mt. Jasper. This was necessary in order to avoid raising the issue of whether it is a single site or a district. To have defined it as district, in National Register terminology, would have required not only identifying all of the sites within it, but also fixing the boundaries for all of the sites before the district boundary could be defined. This would not have been possible with the current information and it would have required a level of effort vastly in excess of the available resources. The solution was simplistic, treat the archaeological phenomena as a single site and make a case that it was an integrated whole with an enormous temporal span. In a fundamental sense, one of my challenges was to make the Mount Jasper Lithic Source – a non-Western, hunter-gatherer, quarry and workshop cluster – intelligible within a Western, industrialized, empirically driven bureaucracy. I believe that this goal has been achieved, but in so doing a somewhat more elaborate presentation was necessary, one which is not immediately obvious to a reader not intimate with the National Register.

The above discussion should not be construed as a criticism of the National Register as an institution or the staff in the National Register Branch. Rather, it is my attempt to explain some of the realities of what goes into the nomination of a property to the National Register and how the lack of fit between contemporary cultural values and the prehistoric archaeological record require careful and complicated solutions in order to meld the two into a successful nomination of a site.

#### ENDNOTES

<sup>1</sup> Section 7, National Register Registration Form, "Narrative Description," text presented *in toto*. Figure 2 is a larger scale presentation of a figure used to satisfy the requirement listed under "Additional Documentation, Maps, USGS."

<sup>2</sup> Section 10, "Verbal Boundary Description," inserted into Section 7.

<sup>3</sup> Section 10, "Verbal Boundary Justification," inserted into Section 7.

<sup>4</sup> Section 8, "Narrative Statement of Significance."

#### REFERENCES

- Billings, Marland P., and Katharine Fowler-Billings  
 1975 *Geology of the Gorham Quadrangle, New Hampshire-Maine*. New Hampshire Department of Resources and Economic Development, Bulletin No. 6, Concord.
- Boisvert, Richard A.  
 1992 *Prehistoric Context 102: Prehistoric Lithic Technology*. New Hampshire Division of Historical Resources. Concord, NH.
- Boisvert, Richard A. and Douglas W. Dickinson  
 1992 Current Research in Lithic Sources in New Hampshire: The View from Mt. Jasper, Berlin. Paper presented at the New England Anthropological Association SemiAnnual Meeting, Bridgewater, Massachusetts.
- Dincauze, Dena F.  
 1976 *The Neville Site: 8,000 Years at Amoskeag, New Hampshire*. Peabody Museum, Cambridge, Mass.

Gramly, R. Michael

- 1980 Raw Material Source Areas and 'Curated' Tool Assemblages. *American Antiquity* 45:823-833.
- 1982 *The Vail Site: A Palaeo-Indian Encampment in Maine*. Bulletin of the Buffalo Society of Natural Sciences, Vol. 30, Buffalo, NY.
- 1984 Mount Jasper: A Direct Access Lithic Source Area in the White Mountains of New Hampshire. In *Prehistoric Quarries and Lithic Production*, edited by Jonathon E. Ericson and Barbara A. Purdy. Cambridge University Press, Cambridge, England.
- 1988 *The Adkins Site: A palaeo-Indian Habitation and Associated Stone Structures*. Persimmon Press, Buffalo, NY.

Gramly, R. Michael, and Steven L. Cox

- 1976 A Prehistoric Quarry-Workshop at Mt. Jasper, Berlin, New Hampshire. *Man in the Northeast* 11:71-74.

Gramly, R. Michael, and Kerry Rutledge

- 1982 Molls Rock: A Multi-Component Site in Northern New Hampshire. *Man in the Northeast* 24:121-134.

Hamilton, Nathan D., and John P. Mosher

- 1990 1990 Grant and Contract Work at the University of Southern Maine. The Maine Archaeological Society Newsletter 4:2:8-9.
- 1991 Cultural Resource Management Plan for Eight Prehistoric Sites in the Rumford Falls Archaeological Project, Rumford, Maine. Unpublished report submitted to the Rumford Falls Water Power Co. by the Archaeology Research Unit, Office of Environmental Research and Education, University of Southern Maine, Gorham, Maine.

Hitchcock, C. H.

- 1877 *The Geology of New Hampshire Part II Stratigraphical Geology*. Edward A. Jenks, Printer, Concord, NH.

Hodder, Leslie W., Gordon L. Cave, Louville Paine, Victor Beaudoin, J. Wilson Gonya, and William R. Boiley, editors.

- 1929 *Berlin, New Hampshire Centennial 1829-1929*. Smith and Town, Publishers.

National Register Branch

- 1991 *How to Complete the National Register Registration Form*. National Register Bulletin 16A. U.S. Department of the Interior, National Park Service, Interagency Resources Division. Washington, DC.

Paquin, Charles P. and James B. Petersen

- 1988 *An Archaeological Phase I Survey of the Pulsifer Rips Project (FERC NO. 9404), Coos County, New Hampshire*. Archaeology Research Center, Dept. of Social Sciences and Business, Univ. of Maine at Farmington.

Ritchie, William A.

- 1979 *A Typology and Nomenclature for New York Projectile Points*. New York State Museum and Science Service Bulletin 384. Albany, NY.

Snow, Dean R.

- 1980 *The Archeology of New England*. Academic Press, New York.

Tomaso, Matthew S.

- 1990 Lithic Analysis of Archaic and Woodland Remains from the Upper Androscoggin River Drainage. *Maine Archaeological Society Newsletter* 6:1:1

True, N. T.

- 1869 Mineralogy among the Aborigines of Maine. *Proceedings of the Portland Society of Natural History* 1:(II):165-168.

**ARCHAEOLOGY OF EASTERN NORTH AMERICA**

The preceding article was subjected to formal  
peer review prior to publication.



## A 20-YEAR INDEX TO ARCHAEOLOGY OF EASTERN NORTH AMERICA VOLUMES 1-20: 1973-1992

Compiled by Dennis C. Curry

### INTRODUCTION

This 20-year index to *Archaeology of Eastern North America* consists of two parts: an AUTHOR INDEX and a KEY WORD INDEX. All articles and editorial comments are indexed. Not included are two features that were occasionally bound with the journal – "Publications Received" and the Eastern States Archeological Federation *Bulletin*. The latter, usually printed as a free-standing publication and which includes abstracts of papers presented at ESAF's Annual Meeting, deserves an index of its own.

The author index is straightforward, listing author(s), date, title, and volume reference. Since only one issue was published each year, only the *volume* number is cited here, despite the fact that Volumes 1, 2, and 7 also bore an *issue* number (i.e., No. 1). The key word index will likely prove subjective and arbitrary. It was designed to aid at least casual researchers. Essentially, each entry was examined with the intent of determining the geographic area covered (either region, state, or province), the time period(s) discussed, and up to three key words that characterize the subject of the article. For articles that focused primarily on one particular archeological site, the site name was used as one of the key words.

*Archaeology of Eastern North America*, or *AENA*, has been called Lou Brennan's baby. In fact, it was Lou who—at the 1971 ESAF meeting in Gainesville, Florida—broached the subject of starting a publication. While the Eastern State Archeological Federation has long been concerned with publication—early on it sponsored several bibliographies and it has produced 50-some issues of the *Bulletin*—Lou Brennan was certainly the modern driving force behind *AENA*. Following the 1971 ESAF meeting, President Don Dragoo appointed a special committee to study the feasibility of instituting a research publication. That committee (Raymond Baby, Louis A. Brennan, Bettye Broyles, Christine Dragoo, Donald W. Dragoo, Marjorie Gay, Alfred K. Guthe, A.R. Kelley, Clifford Lefferts, Martha Otto, Maurice Robbins, Ronald A. Thomas, and Elwood S. Wilkins) met just prior to the 1972 ESAF meeting in Harrisburg, Pennsylvania. At that meeting, the committee decided to propose to ESAF's Executive Board that ESAF institute an annual journal – to be called *Archaeology of Eastern North America* and to contain articles of major significance to the entire eastern part of North America – under the editorship of Louis A. Brennan. On November 10, 1972, the ESAF Executive Board voted to recommend sponsorship of the new publication, the proposal was ratified at the ESAF General Business Meeting, and Lou's baby was born.

*AENA*'s inaugural volume appeared in 1973 and contained a series of articles dealing with the Paleoindian period. This "thematic" volume began an unintended trend toward having much or all of one issue devoted to a single topic (i.e., Vol. 1-Paleoindian; Vol. 2-Radiocarbon Dating; Vol. 3-Archeological Theory; Vol. 4-Adena; Vol. 10-Ceramics; Vols. 11 and 12-Paleoindian; and Vol. 16-Coastal Adaptations; Vol. 7, consisting almost entirely of one article on biface manufacture, could also be added to this list). Volume 1's focus on the Paleoindian period also set a precedent – some would say a preoccupation –